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(71) Applicant(s)

**Mars UK Limited**

**(Incorporated in the United Kingdom)**

**3D Dundee Road, Slough, Berkshire, SL1 4LW,  
United Kingdom**

(72) Inventor(s)

**Stephen Arthur Ariss  
John Anthony Beech  
Iain Fee  
John James**

(51) INT CL<sup>6</sup>

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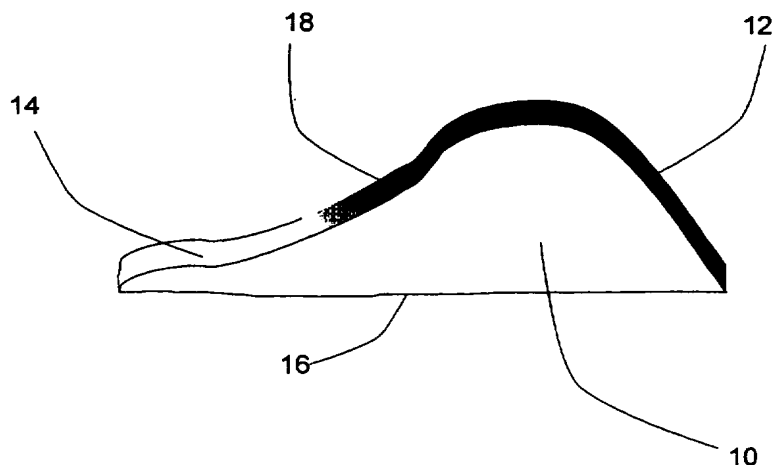
(74) Agent and/or Address for Service

**Reddie & Grose  
16 Theobalds Road, LONDON, WC1X 8PL,  
United Kingdom**

(54) **Gelled proteinaceous food product**

(57) A gelled proteinaceous foodstuff comprising a core 10 of a first heat stable gel and a coating 12 over at least a part of the core surface, the coating comprising a second heat stable gel, at least one of the gels containing protein and at least one of the gels including an edible heat stable colorant. The foodstuff may have the appearance of a slice of fish with the colour of the coating varying from black 12 (carbon black) through an intermediate area 18 to white 14 (titanium dioxide or calcium carbonate).

Fig. 1



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Fig. 1

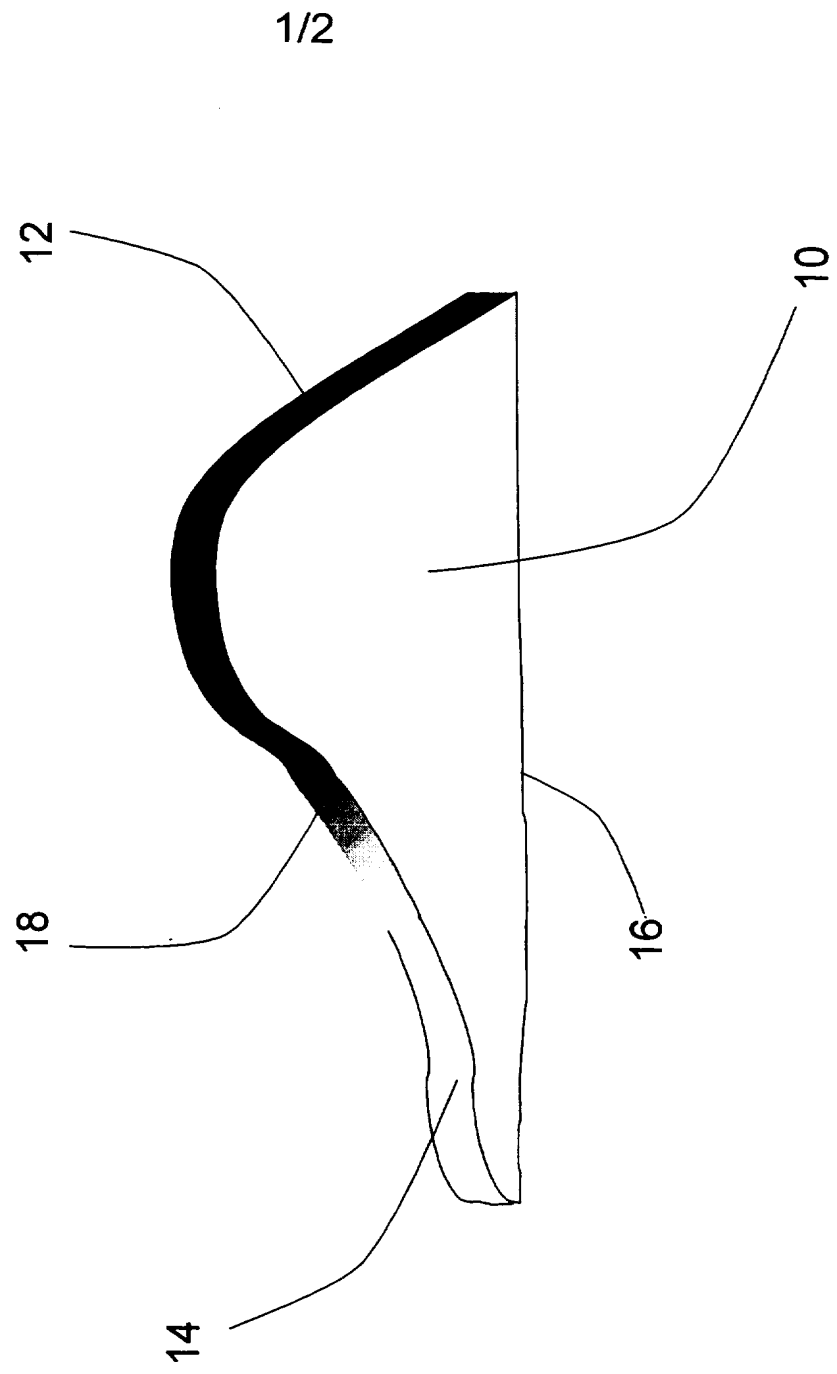
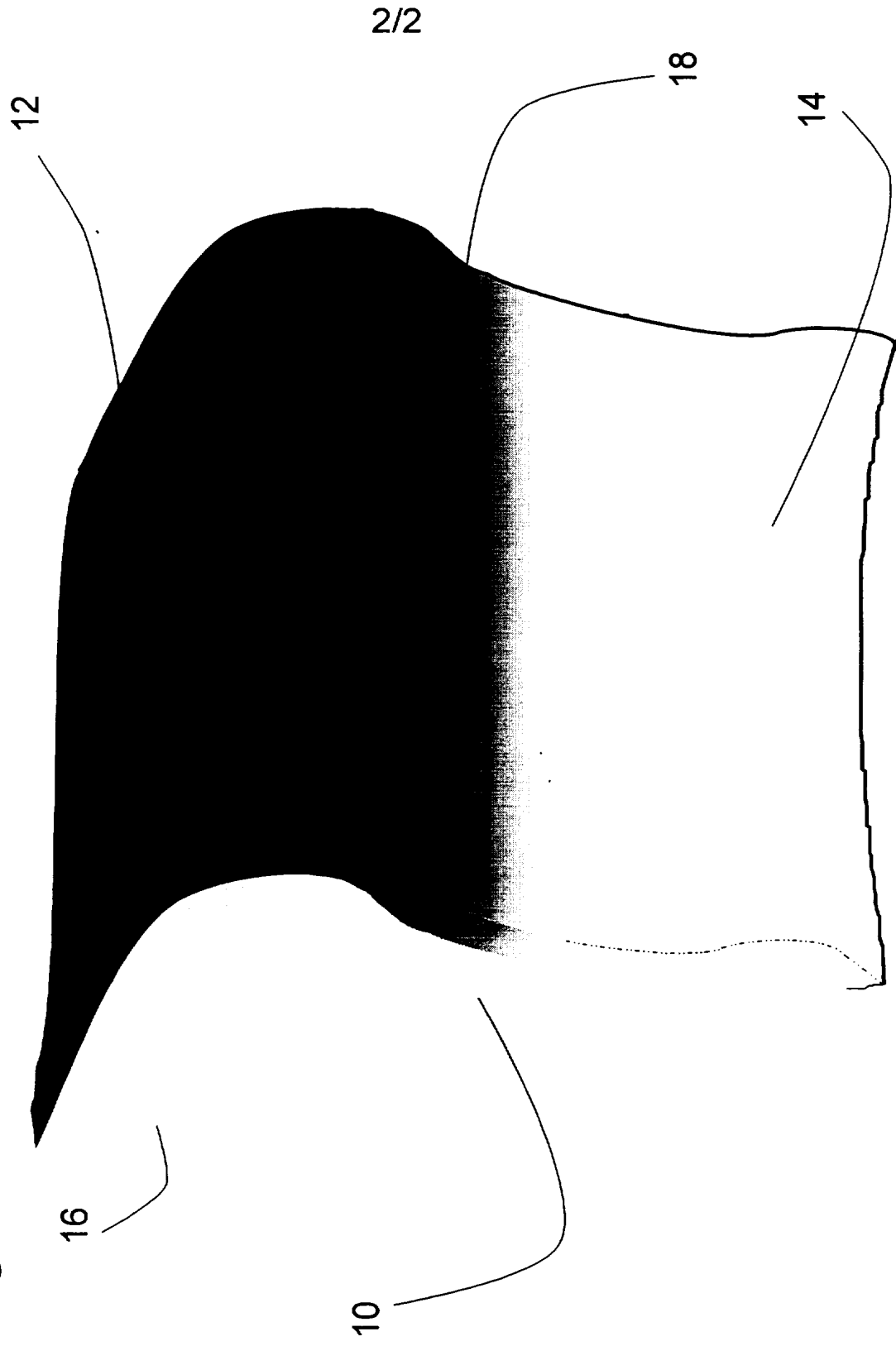


Fig. 2



**GELLED FOOD PRODUCT**

This invention relates to a gelled food product which mimics the appearance of a naturally occurring foodstuff.

It is known to provide gelled proteinaceous foodstuffs which comprise a mixture of protein such as meat, fish or vegetable protein, and one or more gelling agents such as alginate, guar gum, carob gum and so on. Alternatively, the protein alone may gel adequately.

Products of this type are substantially homogenous; they can be treated during production to give them a surface texture reminiscent of for example, a piece of meat or fish. Proposals have also been made to give such pieces internal structure similar to that of meat.

According to the present invention there is provided a gelled proteinaceous foodstuff which mimics the appearance of a cooked or uncooked naturally occurring foodstuff comprising two visually distinct portions, the gelled foodstuff comprising a core of a first heat stable gel and a coating over at least a part of the core surface, the coating comprising a second heat stable gel, at least one of the gels containing protein and at least one of the gels including an edible heat stable colorant, such as a dye or pigment. Preferably, the gels and the colorants are retort stable, so that the foodstuff may be canned.

It is preferred that both gels contain protein. Alternatively, the one of the gels, preferably the second, may be a gel of alginate alone. It is also preferred that the second gel includes a colorant.

In a preferred embodiment, the coating includes a third heat stable gel of a different colour to the second gel. Preferably, both the second and third gels contain edible heat stable colorants. It is also preferred that the third gel contain protein.

In the most preferred embodiment, the second gel adjoins the third gel in which the colours of the second and third gels are blended in the region where the gels meet to give a graduated change of colour from that of the second gel to the third gel.

Although it is preferred that all the gels contain protein, this need not be so; for example the coating gel or gels may be alginate gels containing no protein.

The naturally occurring foodstuff mimicked by the gelled foodstuff of the invention can be any foodstuff which has two visually distinct portions, such as skin and flesh or fat and flesh. Preferred examples of such foodstuffs are fish and meats, including chicken and beef.

The juxtaposition of the core and the coating gel or gels is particularly effective at simulating a chunk of meat or fish with a layer of skin or fat. In particular, an appropriately shaped core can be coated with two gels of contrasting colours, such as black and white, which blend where they meet to produce a graduated grey zone between the black and white zones, which is especially reminiscent of fish skin. In this way, a very natural looking fish chunk is provided. It is particularly preferred that at least one of the gels, preferably the core, includes a fish flavourant.

Among preferred colorants are dried blood, carbon black, titanium dioxide, calcium carbonate and annatto.

In addition to the edible colorants, the coating gel or gels preferably includes a hydrocolloid to keep the colorants in suspension; this allows the use of lower levels of protein in the coating gel or gels than in the core. The hydrocolloids employed are non-gelling, but increase the viscosity of the unset coating. A preferred hydrocolloid is xanthan; other suitable hydrocolloids are guar, alginate, carob and pre-gelled starches. The hydrocolloids are preferably present in an amount of from 0.05% to 6% by weight; in the case of xanthan, the preferred range is 0.05% to 0.8% by weight.

The invention also encompasses a method of making the coated gelled proteinaceous foodstuff of the invention.

The invention will be further described by way of example with reference to the drawings in which:

Figure 1 shows a cross section through a chunk according to a preferred embodiment of the invention; and

Figure 2 shows a perspective view of a chunk according to a preferred embodiment of the invention.

The chunk shown in cross section in Figure 1 comprises a core 10 of a heat stable proteinaceous gel. The gelling system may be any heat stable gelling system suitable for food (including petfood) use, such as alginate set with calcium ions. The protein may be meat, fish or vegetable, and the gel includes a flavourant to render it fish flavoured, if necessary.

A first, black, coating 12 and a second, white, coating 14 overlie the core 10, on its upper surface; its bottom surface 16 is uncoated. The coatings are also proteinaceous gels. The gelling systems of the coatings may be the same as each other and as that of the core 10, or they may be different. They include from 0.05% to 0.8% by weight xanthan. The heat stable edible black colorant in the black coating 12 is from 0.1% to 5% by weight coating carbon black and from 1% to 20%, preferably 10%, by weight of whole dried blood. In the white coating gel 14, the colorant is from 1 to 10%, preferably 2.5%, by weight titanium dioxide and/or from 1 to 15%, preferably 7.5%, by weight calcium carbonate.

The hydrocolloid assists in holding the colorant in suspension in the gel and improves flowability.

The two coatings 12 and 14 meet each other, and their colorants blend to give an intermediate zone 18 between the black coating 12 and the white coating 14, which is graduated in colour from black adjacent the black coating 12 through grey to white adjacent the white coating 14.

The shape of the chunk is reminiscent of a piece cut from the side of a round fish such as mackerel. The intermediate grey

zone 18 between the black 12 and white 14 coatings enhances the impression of the chunk as a piece of fish.

In order to manufacture the chunks shown in the drawings, a rope of gel containing protein having a cross section corresponding to that of the core 10 is extruded in a conventional manner. As the core is extruded, a gel containing the black colorant and a gel containing the white colorant are applied to its surface, preferably by extrusion or spraying. This assembly passes a spreading device which distributes the gels over the surface of the core and brings them together in the intermediate zone 18. The gels set to provide the black 12 and white 14 coatings towards respective sides of the core, and the graduated grey coating in the intermediate zone 18. The formed foodstuff can be cut into chunks prior to packing. provided that the gels and colorants are retort stable, the chunks can be canned together with a suitable medium and retorted.

It will be appreciated that by an appropriate choice and combination of colorants in one or more coatings on a gelled core, chunks which accurately resemble meat, fish or vegetable products can be provided.

CLAIMS

1. A gelled proteinaceous foodstuff which mimics the appearance of a cooked or uncooked naturally occurring foodstuff comprising two visually distinct portions, the gelled foodstuff comprising a core of a first heat stable gel and a coating over at least a part of the core surface, the coating comprising a second heat stable gel, at least one of the gels containing protein and at least one of the gels including an edible heat stable colorant.
2. A gelled proteinaceous foodstuff according to claim 1 in which the first and second gels contain protein.
3. A gelled proteinaceous foodstuff according to claim 1 or 2 in which the second gel includes an edible heat stable colorant.
4. A gelled proteinaceous foodstuff according to claim 1, 2 or 3 in which the coating extends over only a part of the core surface.
5. A gelled proteinaceous foodstuff according to any preceding claim in which the coating comprises a third heat stable gel of a different colour to the first and second gels.
6. A gelled proteinaceous foodstuff according to claim 5 in which the third gel includes an edible heat stable colorant.
7. A gelled proteinaceous foodstuff according to claim 5 or 6 in which the third gel contains protein.



8. A gelled proteinaceous foodstuff according to claim 5, 6 or 7 in which the second gel adjoins the third gel in which the colours of the second and third gels are blended in the region where the gels meet.

9. A gelled proteinaceous foodstuff according to any preceding claim in which at least one of the gels, preferably the first gel, contains a flavourant.

10. A gelled proteinaceous foodstuff according to any preceding claim in which the coating has the appearance of meat or fish skin.

11. A gelled proteinaceous foodstuff according to any preceding claim in which one of the gels, preferably the second or third gel, includes carbon black as a colorant.

12. A gelled proteinaceous foodstuff according to claim 11 in which the carbon black is present in the said gel in amount of from 0.1% to 5% by weight.

13. A gelled proteinaceous foodstuff according to any preceding claim in which the said gel also includes whole dried blood as a colorant.

14. A gelled proteinaceous foodstuff according to claim 13 in which the whole dried blood is present in the said gel in an amount of from 1% to 20%, preferably 10%, by weight.

15. A gelled proteinaceous foodstuff according to any preceding claim in which at least one of the gels, preferably the second or third gel, contains titanium dioxide as colorant.

16. A gelled proteinaceous foodstuff according to claim 15 in which the titanium dioxide is present in the said gel in an amount of from 1 to 10%, preferably 2.5%, by weight.

17. A gelled proteinaceous foodstuff according to any preceding claim in which at least one of the gels, preferably the second or third gel, contains calcium carbonate as colorant.

18. A gelled proteinaceous foodstuff according to claim 17 in which the calcium carbonate is present in the said gel in an amount of from 1 to 15%, preferably 7.5%, by weight.

19. A gelled proteinaceous foodstuff according to any preceding claim in which at least one of the gels, preferably the second or third gel, contains annatto as colorant.

20. A gelled proteinaceous foodstuff according to any preceding claim in which the coating gel or gels contains a hydrocolloid.

21. A gelled proteinaceous foodstuff according to claim 20 in which the hydrocolloid is present in the said gel or gels in an amount of from 0.05% to 6% by weight.

22. A gelled proteinaceous foodstuff according to claim 20 or 21 in which the hydrocolloid is xanthan.

23. A gelled proteinaceous foodstuff according to claim 22 in which the xanthan is present in the said gel or gels in an amount of from 0.05% to 0.8% by weight.

24. A gelled proteinaceous foodstuff according to any preceding claim in which part of the surface of the core is coated by a second gel containing carbon black, part of the surface of

the core is coated by a third gel containing titanium dioxide abutting the second gel, the colorants of the second and third gels blending at the abutment between the second and third gels to give a grey coating region, whereby the coating has the appearance of fish skin.

25. A gelled proteinaceous foodstuff according to claim 24 in which part of the surface of the core is uncoated.

26. A gelled proteinaceous foodstuff according to any preceding claim in the form of a shaped piece having the shape of a chunk cut from a fish including the fish skin.

27. A gelled proteinaceous foodstuff according to any preceding claim including a flavourant which imparts a fish flavour to the foodstuff.

28. A gelled proteinaceous foodstuff substantially as described with reference to the drawings.



**Application No:** GB 9715353.0  
**Claims searched:** 1-28

**Examiner:** Keith Kennett  
**Date of search:** 10 October 1997

**Patents Act 1977**  
**Search Report under Section 17**

**Databases searched:**

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): A2B ( BKG, BLP, BSC, BMM3, BMM4, BMM9, BMM19, BMM29, BMM39 )

Int Cl (Ed.6): A23L 1/05, 1/27, 1/314; A23P 1/08, 1/12

Other: Online: WPI

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| Category | Identity of document and relevant passage | Relevant to claims |
|----------|---|--------------------|
| A        | GB 2170092 A ( SPILLERS ) see claim 1     | 1                  |
| A        | WO 86/05365 A1 ( COLORADO ) see claim 1   | 1                  |

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|---|---|---|--|
| X | Document indicating lack of novelty or inventive step   | A | Document indicating technological background and/or state of the art.  |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention.          |
| & | Member of the same patent family  | E | Patent document published on or after, but with priority date earlier than, the filing date of this application. |

**DERWENT-ACC-NO:** 1998-079373**DERWENT-WEEK:** 200337*COPYRIGHT 2009 DERWENT INFORMATION LTD*

**TITLE:** Gelled proteinaceous food which mimics natural food in appearance comprises a core of gel at least partially coated by a second gel, containing protein and colourant so that two portions are visible

**INVENTOR:** ARISS S A; BEECH J A ; FEE I ; JAMES J**PATENT-ASSIGNEE:** MARS UK LTD[MRSC]

**PRIORITY-DATA:** 1996GB-017256 (August 16, 1996) ,  
1996EP-305328 (July 19, 1996)

**PATENT-FAMILY:**

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|---------------|-------------------|-----------------|
| GB 2315399 A  | February 4, 1998  | EN              |
| WO 9803086 A1 | January 29, 1998  | EN              |
| AU 9735546 A  | February 10, 1998 | EN              |
| EP 918470 A1  | June 2, 1999      | EN              |
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| EP 918470 B1  | November 27, 2002 | EN              |
| DE 69717457 E | January 9, 2003   | DE              |
| ES 2186901 T3 | May 16, 2003      | ES              |

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 CA CH CN CU CZ DE DK EE ES FI  
 GB GE GH HU IL IS JP KE KG KP  
 KR KZ LC LK LR LS LT LU LV MD  
 MG MK MN MW MX NO NZ PL PT RO  
 RU SD SE SG SI SK SL TJ TM TR  
 TT UA UG US UZ VN YU ZW AT BE C  
 H DE DK EA ES FI FR GB GH GR IE  
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 SE SZ UG ZW AL AT BE CH DE DK  
 ES FI FR GB GR IE IT LI LT LU  
 LV MC NL PT RO SE SI AL AT BE  
 CH DE DK ES FI FR GB GR IE IT  
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**APPLICATION-DATA:**

| <b>PUB-NO</b> | <b>APPL-DESCRIPTOR</b> | <b>APPL-NO</b>    | <b>APPL-DATE</b>    |
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| WO1998003086A1 | N/A      | 1997WO-<br>GB01955 | July<br>21,<br>1997 |
| EP 918470A1    | N/A      | 1997WO-<br>GB01955 | July<br>21,<br>1997 |
| NZ 333742A     | N/A      | 1997WO-<br>GB01955 | July<br>21,<br>1997 |
| EP 918470B1    | N/A      | 1997WO-<br>GB01955 | July<br>21,<br>1997 |
| DE 69717457E   | Based on | 1997WO-<br>GB01955 | July<br>21,<br>1997 |

**INT-CL-CURRENT:**

| <b>TYPE</b> | <b>IPC DATE</b>     |
|-------------|---------------------|
| CIPS        | A23J3/22 20060101   |
| CIPS        | A23L1/00 20060101   |
| CIPS        | A23L1/0532 20060101 |
| CIPS        | A23L1/054 20060101  |
| CIPS        | A23L1/27 20060101   |
| CIPS        | A23L1/314 20060101  |
| CIPS        | A23L1/315 20060101  |
| CIPS        | A23L1/317 20060101  |

CIPS

A23L1/325 20060101

**ABSTRACTED-PUB-NO:** GB 2315399 A**BASIC-ABSTRACT:**

Gelled, proteinaceous food which mimics the appearance of a naturally occurring food has two visually distinct portions and comprises a core of heat stable gel coated on at least part of its surface with a second heat stable gel. The gels may contain protein and include an edible heat stable colourant.

Preferably, the gels contain a hydrocolloid in amount 0.05-6 wt.%, especially xanthan in amount 0.05-0.8 wt.%.

ADVANTAGE - The product has improved appearance. Inclusion of the hydrocolloid assists in holding the colourant in suspension in the gel and improves flowability.

**TITLE-TERMS:** GEL PROTEINACEOUS FOOD MIMIC NATURAL  
APPEAR COMPRISE CORE COATING SECOND  
CONTAIN PROTEIN COLOUR SO TWO PORTION  
VISIBLE

**DERWENT-CLASS:** D13**CPI-CODES:** D03-H01J;

**UNLINKED-DERWENT-REGISTRY-** ; 1278U ; 1669U ;  
**NUMBERS:** 1966U



**SECONDARY-ACC-NO:**

**CPI Secondary Accession Numbers:** 1998-026489